

E 1
10. (Twice amended) The method of claim 6 wherein the oncogene encodes a protein selected from the group consisting of v-myc, N-myc, c-myc, SV40 large T antigen, polyoma large T antigen, E1a protein of adenovirus, and E7 protein of human papillomavirus.

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12. (Twice amended) A conditionally-immortalized dorsal root ganglion progenitor cell containing an oncogene, wherein the cell differentiates into a neuron upon inhibition of the expression of the oncogene.

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15. (Amended) A cell according to claim 12, wherein the cell differentiates into sensory neurons under appropriate culture conditions.

16. (Amended) A cell according to claim 12, wherein the cell differentiates into nociceptive sensory neurons under appropriate culture conditions.

53. (Amended) A method for determining whether or not a conditionally-immortalized dorsal root ganglion progenitor cell is capable of differentiation into a neuron, comprising the steps of:

(a) detecting the presence or absence of β -III-tubulin expression in the cell in the proliferative growth condition; and

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(b) if β -III-tubulin expression is detected, identifying said cell expressing β -III-tubulin as a conditionally-immortalized dorsal root ganglion progenitor cell that differentiates into neurons under cell culture conditions that allow conditionally-immortalized precursor cells to differentiate into neurons.

54. (Amended) A method for transplanting a conditionally-immortalized dorsal root ganglion progenitor cell into a mammal, comprising administering to a mammal a cell produced according to the method of claim 6.

55. (Amended) A method for transplanting a conditionally-immortalized dorsal root ganglion progenitor cell into a mammal, comprising administering to a mammal a cell according to claim 12.

62. (Amended) A method for detecting the presence or absence of a protein in a sample, comprising:

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(a) contacting a sample with a cell produced according to the method of claim 6; and
(b) subsequently detecting a response or lack of response in the cell, wherein said response is correlated with the presence of said protein,

wherein a response indicates the presence of said protein and said lack of response indicates the absence of the protein.

63. (Amended) A method for detecting the presence or absence of a protein in a sample, comprising:

- SUB G1)
63. (a) contacting a sample with a cell according to claim 12; and
(b) subsequently detecting a response or lack of response in the cell, wherein said response is correlated with the presence of said protein,

wherein a response indicates the presence of said protein and said lack of response indicates the absence of the protein.

64. (Amended) A method of detecting a human dorsal root ganglion nucleic acid or protein, comprising detecting the presence of said nucleic acid or protein within a cell produced according to the method of claim 6.

65. (Amended) A method of detecting a human dorsal root ganglion nucleic acid or protein, comprising detecting the presence of said nucleic acid or protein within a cell produced according to claim 12.

66. (Amended) A method for screening for an agent that affects dorsal root ganglion cell death, comprising:

- SUB G1)
66. (a) contacting a cell produced according to the method of claim 6 with a candidate agent under conditions that, in the absence of the candidate agent, results in death of the cell; and
(b) subsequently measuring the ability of the candidate agent to affect death of the cell by measuring cell death, and therefrom identifying an agent that affects dorsal root ganglion cell death.

67. (Amended) A method for screening for an agent that affects dorsal root ganglion cell death, comprising:

- SUB G1)
67. (a) contacting a cell according to claim 12 with a candidate agent under conditions that, in the absence of the candidate agent, results in death of the cell; and
(b) subsequently measuring the ability of the candidate agent to affect death of the cell by measuring cell death, and therefrom identifying an agent that affects dorsal root ganglion cell death.

68. (Amended) A method for screening for a protein that regulates dorsal root ganglion cell death, comprising:

(a) altering the level of expression of a protein within a cell produced according to the method of claim 6, and

(b) subsequently measuring the effect of the alteration on the death of the cell by measuring cell death, and therefrom identifying a protein that regulates dorsal root ganglion cell death.

69. (Amended) A method for screening for a protein that regulates dorsal root ganglion cell death, comprising:

(a) altering the level of expression of a protein within a cell according to claim 12; and

(b) subsequently measuring the effect of the alteration on the death of the cell by measuring cell death, and therefrom identifying a protein that regulates dorsal root ganglion cell death.

Please add the following new claims:

70. (New) A method for transplanting a dorsal root ganglion cell into a mammal, comprising administering to a mammal a cell produced according to the method of claim 47.

71. (New) A method of treating a patient, comprising administering to a patient a cell produced according to the method of claim 47.

72. (New) A method according to claim 71 wherein the patient is afflicted with chronic pain and/or a pathological condition characterized by neurodegeneration.

73. (New) A method according to claim 72 wherein the pathological condition is a neuropathy.

74. (New) A method for screening for an agent that modulates the activity of a protein produced by a dorsal root ganglion cell, comprising:

(a) contacting a cell produced according to the method of claim 47 with a candidate agent; and

(b) subsequently measuring the ability of the candidate agent to modulate the activity of a protein produced by the cell.

75. (New) A method for detecting the presence or absence of a protein in a sample, comprising:

(a) contacting a sample with a cell produced according to the method of claim

47; and

SUB G1) (b) subsequently detecting a response or lack of response in the cell, wherein said response is correlated with the presence of said protein,

wherein a response indicates the presence of said protein and said lack of response indicates the absence of the protein.

76. (New) A method of detecting a human dorsal root ganglion gene or protein, comprising detecting the presence of a gene or protein within a culture of cells produced according to the method of claim 47.

E6 77. (New) A method for screening for an agent that affects dorsal root ganglion cell death, comprising:

(a) contacting a cell produced according to the method of claim 47 with a candidate agent under conditions that, in the absence of the candidate agent, results in death of the cell; and

(b) subsequently measuring the ability of the candidate agent to affect death of the cell by measuring cell death, and therefrom identifying an agent that affects dorsal root ganglion cell death.

SUB G1) 78. (New) A method for screening for a protein that regulates dorsal root ganglion cell death, comprising:

(a) altering the level of expression of a protein within a cell produced according to the method of claim 47; and

(b) subsequently measuring the effect of the alteration on the death of the cell by measuring cell death, and therefrom identifying a protein that regulates dorsal root ganglion cell death.